Los Alamos
NATIONAL LABORATORY
memorandum
Laboratory Development

To/MS: Master Management
From/MS: R. W. Selden, ADLD, MS A113
Phone/FAX: 5-6564/FAX 5-4092

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Los Alamos Strategic Plan

A copy of the Laboratory's strategic plan as of January 1993 is attached. It is labeled as a working document to reflect the fact that the plan is intended to be a living document. We will accomplish this by making strategic planning an integral part of the management process at Los Alamos.

This document is for *Internal Laboratory Use Only*. A strategic plan summary is also being published that is intended for *External Distribution*.

Questions, comments, or requests for copies of the summary document should be directed to the ADLD staff.

RWS:dap

This document was leaked to LASG. The sanitized summary – radically different in content + tone – is available from CANL.

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- Strengthen contacts with UN and international program funding sources, such as AID, State, and EPA, to become a key component of their programs.

5. By end of FY93, decide whether to establish significant Laboratory programs in the areas of environmental toxicology and ecological risk assessment.

   Responsible Person: J. Shipley

   Implementation Strategy

   - Set up a task force comprising experts in the field to determine the Laboratory's niche, perform a market/competitive analysis, and create a plan of action. Involve EPA in the team.

Strategic Direction 2

Address the environmental problems of the DOE complex, DoD, and other government agencies and expand our related R&D efforts by building on existing Laboratory programs.

Measurable Goals

1. By FY97, improve performance on our environmental restoration and waste management operations and programs to the point that the Laboratory is regarded as a center of environmental excellence.

   Responsible Person: T. Gunderson

   Implementation Strategy

   - Make environmental excellence a fundamental part of the Laboratory's culture.

   - Carry out these programs in a cost-effective manner as measured by relevant UC and DOE audits.

2. By the end of FY93, place at least three additional Laboratory staff in Washington to provide environmental technical support to DOE and to take advantage of opportunities to increase participation in environmental programs.

   Responsible Person: J. Shipley

   Implementation Strategy

   - Establish a corps of highly motivated, capable individuals who are charged with creating effective networks with key individuals/offices over an extended period of time.

   - Develop a coordinated network between change-of-station personnel in environmental assignments and local program personnel.

   - Enhance upper-management efforts on generating high-level government and other support that ensures fair opportunity for the Laboratory to participate in and contribute to appropriate environmental activities.

3. By FY94, require that all new projects specify resource requirements for waste minimization.

Responsible Person: H. Ettinger

Implementation Strategy

- Insert into the proposal-preparation/project-baselining process a mechanism for ensuring consideration of waste minimization requirements.

4. By FY97, ensure that all Laboratory operations incorporate waste minimization as a fundamental, integral component.

Responsible Person: To be designated

Implementation Strategy

- Implement a Laboratory-wide program, including internal communications, to raise the visibility and importance of waste minimization.

- Diminish institutional barriers by forming partnerships among the waste managers, waste generators, and technology developers to devise better ways to minimize waste.

- Implement incentive programs to support waste minimization, e.g., cost recharge for waste management.

5. By FY97, establish a program to develop technical capabilities for waste minimization as operations and processes evolve.

Responsible Person: E. Wewerka

Implementation Strategy

- Urge technical program sponsors (e.g., DOE/DP) to incorporate realistic waste minimization requirements and resources into their programs.

- To ensure resources for advancing waste minimization technology for both new and current operations, convince programmatic sponsors to allocate at least 10% of their waste management costs to waste minimization science and technology.

6. By FY97, increase funding for advanced waste treatment technology development to $20M.

Responsible Person: D. Hjeresen

Implementation Strategy

- Concentrate on major waste problems, e.g., mixed waste, Hanford tank waste, off-gas treatment, and liquid effluent cleanup.

- From the technology standpoint, focus on separation methods (e.g., to unmix mixed waste), both physical and chemical, and on advanced oxidation techniques as either augmentation of or alternatives to incineration.

- Support the Hanford Tank Waste Remediation System project.

- Develop and implement a plan for treating the Rocky Flats residues and other materials when the facility transitions to DOE/EM sometime in FY93.

7. Seek a funded $20M program spanning FY93 and FY94 from DOE/EM to complete systems evaluations of accelerator-driven transmutation technology applied to defense wastes at DOE complex sites. Evaluate alternative waste management strategies to discern potential benefits offered by transmutation systems, with particular emphasis on overall material balances and economics.

   Responsible Person: R. Linford

   Implementation Strategy

   - Given a favorable evaluation, obtain a continuing annual commitment from DOE/EM to an R&D program that would demonstrate key technologies by the year 2000.

   - Involve other national laboratories, especially Oak Ridge, in this evaluation, with particular emphasis on foreign, including Russian, contributions.

   - Involve US industries as strong partners in all program efforts.

8. By FY97, increase funding for development and implementation of environmental restoration technology to $20M per year.

   Responsible Persons: H. Murphy/R. Vocke

   Implementation Strategy

   - Develop applications of remote sensing technologies from satellite and aircraft for rapid, wide-area environmental surveillance.

   - Exploit our previous work in nuclear containment, nuclear physics, and energy reservoir (geothermal, oil, and gas) exploration technologies to develop ground-based, noninvasive, subsurface imaging of buried waste and contaminant plumes and advanced techniques for sample-hole drilling, bore-hole logging, and improved sampling.

   - Continue present efforts to expedite contaminant analysis using robotics analysis and advanced field screening.

   - Using experience developed in energy projects, develop a larger program in improving in-situ remediation or stabilization techniques including advanced soil/gas extraction, biochelating for enhancing contaminant mobility, permeable barriers, and waste-site capping techniques.

Strategic Direction 3

Expand Laboratory partnerships with industry in environmental technology development and application.

Measurable Goal

1. Increase environmental partnerships with industry to $25M by FY95 and $35M by FY97.

   Responsible Person: J. Shipley (with K. Adams)

   Implementation Strategy

   - Develop and advocate a clear vision of what we are doing and where we want to be in what time frame with industry partnerships.

   - Identify and focus on a few large and highest-priority markets.

   - Team with companies and communities who are or are becoming leaders in the environmental world.

   - Develop business-oriented/enterprise-like partnerships with Sandia, the DOE, the EPA, and the State of New Mexico.

   - Obtain more DOE/EM funding to work on precompetitive generic technologies focused on environmental industry sectors.

   - Leverage off ongoing program activities in weapons dismantlement, waste minimization, waste handling, nonproliferation, and funded environmental programs to develop specific partnerships, e.g., through CRADAs.

   - Encourage excellent internal R&D programs for assessment technologies, treatment technologies, special sensor development, and environmental chemistry.

   - Pursue initiatives for developing integrated assessment tools (economic/technical) using geographic-information-system and global-positioning-system technologies; specific large treatment technologies; and recycling programs.

   - Develop a process to involve more of the Laboratory technical staff in environmental arenas and problems, thereby helping people to get to the point of being able to speak with potential industry partners from a position of knowledge.

Strategic Direction 4

Enhance Laboratory relationships with the public and with educational institutions in the area of environmental science and technology.

Measurable Goals

1. By FY95, establish focus groups (internal with external advisors, including the public) for assisting in the selection of environmental technologies and definition of environmental science and technology thrust areas.

Responsible Person: J. Shipley (with S. Duncan)

Implementation Strategy

- Use "focus group" techniques applied early in technology development to minimize the risks of public nonacceptance. Take full advantage of risk-benefit-cost analyses.

- Draw upon existing expertise at UNM's Institute for Public Policy to design focus groups for exploring new technologies and potential alternative technologies. This approach can also be used to apply environmental science to long-term social goals.

2. By FY95, secure active participation by educational institutions in at least half of the Laboratory's environmental science and technology programs.

Responsible Person: J. Shipley (with W. Miller)

Implementation Strategy

- Establish a joint effort with the University Research and Science Education (URSE) office (see the Science and Technology Base Subsector of the Process and Infrastructure Sector) for strengthening more collaborations with UC campuses and local New Mexico institutions in environmental areas.

- As technology development is funded, implement greater use of postdoctoral and graduate research assistant programs as well as collaborations with professors.

- Continue to support the Waste Management Education and Research Consortium (WERC).

- In developing employment candidates from the postdoctoral and graduate research assistant pool, specifically include those enrolled in the WERC program.

- Design and develop, in conjunction with local educational institutions, a retraining program for existing Laboratory personnel to gain knowledge and skills in environmental areas.

Strategic Direction 5

Integrate EPA and State of New Mexico (NMED) regulators with key environmental science and technology efforts at Los Alamos.

Measurable Goal

1. By FY95, implement a regulator collaboration program with EPA and NMED involving environmental science and technology.

Responsible Person: C. Nylander

Implementation Strategy

- Develop collaborative efforts among the EPA Region VI and/or EPA laboratories, the NMED, and appropriate Laboratory groups.

- Encourage regulator personnel to work with us at Los Alamos in our programs.

- Provide Los Alamos personnel (some on change-of-station assignments) to interact with regulatory agencies for the purpose of evaluating regulatory compliance requirements associated with new environmental initiatives.

- Demonstrate to the regulatory bodies the Laboratory's commitment to a technically sound collaborative program. Convince DOE sponsors of the complex-wide value of the program to obtain funding support in the longer term.

PROCESS AND INFRASTRUCTURE SECTOR

REGULATIONS AND COMPLIANCE SUBSECTOR

Owner: John T. Whetten

Assumptions

1. Federal and state ES&H regulations will increase in number and scope.
2. Federal regulations in finance, human resources, maintenance, and procurement will increase in number and scope.
3. Federal and state regulators will increase the attention focused on the Laboratory because of its nuclear R&D.

Unresolved Issues

1. How can the Laboratory develop a proactive position for dealing with increased regulatory requirements?
2. How can the Laboratory resolve differences between regulatory compliance and effective R&D efforts?
3. How can the Laboratory communicate its compliance strategy to the public?
4. How can the Laboratory work within the provisions of the extended DOE-University of California contract so that its interface with UC on regulations adds value?

Strategic Direction 1

Improve Laboratory business practices to deal effectively with the growing regulatory environment.

Measurable Goals

1. During FY93, conduct a pilot program to reengineer the environmental compliance process.

   Responsible Person: A. Tiedman

   Implementation Strategy

   - Implement the recommendations of the Environmental Compliance CQI Team.
   - With owners of facilities, establish compliance requirements, including performance standards and mechanisms for accountability.

2. In FY94, reduce the number of negative compliance findings by external regulatory inspectors by 50% as compared with the FY92 number.

   Responsible Persons: D. Winston/T. Gunderson

Implementation Strategy

- Develop baseline for FY92.
- Provide updates to ES&H Council every 6 months.

3. During FY93, using a graded approach, incorporate the principles of conduct of operations into Laboratory facility management.

   Responsible Persons: R. Walters/W. Wadt/C. Blackwell/CQI Team

   Implementation Strategy

   - Take a vertical, facility-oriented approach that focuses first on nuclear facilities.
   - Form a CQI team to integrate conduct of operations, quality assurance, configuration management, and self-assessment into a coherent set of Laboratory operating principles.

4. By FY94, implement a risk-based, cost/benefit prioritization process for operations and regulatory compliance.

   Responsible Person: C. Robertson

   Implementation Strategy

   - For FY94, extend the risk-based, cost/benefit methodology to all institutional ES&H activities.
   - Work with DOE to establish the risk-based, cost/benefit methodology as a valid basis for a graded approach to new directives and regulatory compliance.
   - For FY95, extend the risk-based, cost/benefit methodology to all other appropriate institutional activities.

5. Establish an effective presence in the DOE Directives Improvement Project.

   Responsible Person: R. Walters

   Implementation Strategy

   - Station a Laboratory employee at DOE Headquarters to participate in the DOE directives process.
   - Take a leadership role in developing a DOE directives prioritization process.
   - Participate on the DOE Procedures & Standards Committee and in the DOE Directives Improvement Project.

- Lay out the directions for the Laboratory's information infrastructure for the next five years, including the current Los Alamos Integrated Communications System (LAICS).

3. During the period 1993–1995, implement an aggressive waste minimization and pollution control program.

   Responsible Persons: T. Gunderson/A. McMillan

   Implementation Strategy

   - By the end of FY94, reduce the number of National Pollutant Discharge Elimination System (NPDES) outfalls by 50%, the number of radioactive air emissions stacks by 20%, and the quantity of solid waste generated by 25%.

4. By FY94, develop a plan to make available additional uncleared facilities (both offices and laboratories) for unclassified programs and personnel.

   Responsible Persons: Associate Directors/D. Landry

   Implementation Strategy

   - Identify current secure facilities that house a small fraction of classified work.

   - Continue working with DOE to establish a graded clearance policy for Laboratory employees.

   - Prepare a cost estimate to declassify facilities.

   - Prepare a cost-savings estimate to operate specific facilities in an unsecured mode.

Strategic Direction 4

Develop and initiate facilities construction programs that support long-range Laboratory R&D objectives.

Measurable Goals

1. By the end of FY93, obtain Laboratory/UC approval and DOE endorsement of a five-year construction plan for modernization of *defense-related R&D facilities*, which are categorized as follows:

   Nuclear Weapons Sector—RD&T Subsector

   - Materials Science Laboratory (complete construction in FY93)
   - Dual-Axis Radiographic Hydrotest Facility (start construction in FY93)
   - High-Explosive Materials Test Facility (start construction in FY94)
   - Test Transition/Safeguards Facilities (start design in FY95–96)
   - DARHT Second Axis (start construction in FY97)
   - Weapon Explosives Safety Test Facility (start design in FY98)
   - High-Energy Radiographic Facility (start design in FY98)
   - Weapons Component Testing & Development Laboratory (start design in FY98)
   - Explosive Pulsed-Power Facility (start design in FY98)
   - Materials Science Initiatives Laboratory (start design in FY98)

Nuclear Weapons Sector—Nuclear Materials Subsector

- Chemistry-Metallurgy Research (CMR) Building Upgrades (start construction in FY93)
- Nuclear Materials Storage Facility (start design in FY93)
- Radiographic Facility, TA-55 (start design in FY95)
- Integration and Consolidation of Livermore Plutonium R&D (start design in FY95)
- Sigma/CMR Uranium R&D Upgrades (start design in FY97)
- LiH/LiD Component R&D Facility (start design in FY97)
- Tritium Laboratory (start design in FY98)
- Special Nuclear Materials Storage and Processing Facilities (start design in FY98)

Nuclear Weapons Sector—Reconfiguration/Complex 21 Support Subsector

- Nonnuclear Consolidation, five subprojects (start design in FY93)
- Complex 21 Modeling Laboratory (start design in FY97)

Defense Sector

- Nuclear Safeguards Technology Laboratory (start construction in FY93)
- Special Electronics Shop (start design in FY95)
- Nonproliferation & Arms Control Center (start design in FY95–96)
- Energetic Materials Pilot Plant (start design in FY98)

Responsible Persons: R. Wells/D. Erickson

Implementation Strategy

- Review priorities and obtain Senior Management Construction Board approval of plan by June 30, 1993.

- Review plan with DOE interested parties by July 31, 1993.

- Obtain DOE sponsor's endorsement of plan by September 30, 1993.

2. By the end of FY94, obtain Laboratory/UC approval and DOE endorsement of a five-year construction plan for modernization of *civilian technologies R&D facilities*, with emphasis on the following initiatives:

- National Biomedical Facility (start design in FY95)
- Line D Shielding (start design in FY97)
- 1-MW Neutron-Scattering Source, LANSCE II (start design in FY97)
- Hot Dry Rock II (start design in FY97)
- Space Nuclear Fuels Users Facility (start design in FY98)
- Environmental Sciences Building (start design in FY99)

Responsible Person: R. Wells

Implementation Strategy

- Obtain Senior Management Construction Board approval of plan by November 30, 1993.

- Review plan with interested parties at DOE by March 31, 1994.

- Obtain DOE sponsor's endorsement of plan by September 30, 1994.

3. By the end of FY93, obtain Laboratory/UC approval and DOE endorsement of a five-year construction plan for modernization of *site-wide infrastructure and institutional support facilities*, with emphasis on the following initiatives:

- Safeguards and Security Upgrades (complete construction in FY93)
- Gas Line Replacements (start construction in FY93)
- Static VAR Compensator (start construction in FY93)
- Fire Protection Improvements (start design in FY95)
- Water Well Replacements (start design in FY95)
- West Technical Area Substation (start design in FY95)
- Central Cooling Network (start design in FY97)
- SM-105 Refurbishment (start design in FY97)
- Central Physics Instrumentation (start design in FY97)
- Cranes and Elevators Safety Upgrades (start design in FY97)
- Fiber-Optic Network (start construction in FY97)
- Interior Electric Upgrades (start design in FY98)
- SM-43 Refurbishment (start design in FY98)
- SM-40 Refurbishment (start design in FY98)
- Roof Upgrades (start design in FY98)

Responsible Person: R. Wells

Implementation Strategy

- Obtain Senior Management Construction Board approval of plan by June 30, 1993.

- Review plan with interested parties at DOE by July 31, 1993.

- Obtain DOE sponsor's endorsement of plan by September 30, 1993.

4. By the end of FY93, obtain Laboratory/UC approval and DOE endorsement of a five-year construction plan for modernization of *environmental and waste management facilities*, with emphasis on the following initiatives:

- ES&H Improvements (start construction in FY93)
- Mixed-Waste Receiving & Storage Facility (start construction in FY93)
- Air Exhaust Modifications, TA-53 (start construction in FY93)
- Mixed-Waste Storage & Disposal Facility (start design in FY93)
- High-Explosives Wastewater Treatment Facility (start design in FY94)
- Sanitary Landfill (start design in FY96)
- Radioactive Liquid Waste Treatment Facility (start design in FY96)
- Transuranic (TRU) Waste Treatment Facility (start design in FY97)
- Accelerator Produced Tritium (APT)/Accelerator Transmutation of Waste (ATW) R&D Facility (start design in FY97)

Responsible Persons: R. Wells/D. Post

Implementation Strategy

- Obtain Senior Management Construction Board approval of plan by June 30, 1993.

- Review plan with interested parties at DOE by July 31, 1993.

- Obtain DOE sponsor's endorsement of plan by September 30, 1993.